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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/791,913	03/03/2004	Alexei Glebov	02EK-108867	3836
30764	7590	09/07/2005		
SHEPPARD, MULLIN, RICHTER & HAMPTON LLP 333 SOUTH HOPE STREET 48TH FLOOR LOS ANGELES, CA 90071-1448			EXAMINER PENG, CHARLIE YU	
			ART UNIT 2883	PAPER NUMBER

DATE MAILED: 09/07/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No. 10/791,913	Applicant(s) GLEBOV ET AL. 	
	Examiner Charlie Peng	Art Unit 2883	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-34 is/are pending in the application.  
     4a) Of the above claim(s) 26-34 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-25 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 03 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
     a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>10/25/2004</u> . | 6) <input type="checkbox"/> Other: ____.  |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Japan Patent Publication 06-148-455 to Koji et al. in view of U.S. Patent 6,733,190 to Kuhara et al. Koji teaches a photodiode array **81** having photodiodes **81b**, a photoconductive corrugated plate **91** having optical waveguides **91b** thereon, and optical coupling sections **81c** (the equivalent of "one of more waveguides" as claimed by the applicant) substantially the same size as the photodiodes, wherein the optical coupling sections **81c** can be made from melted (liquid) polymer material that subsequently fuses. (See at least Drawing 13 and description) The waveguides **91b** are essentially core components, as light propagates through the waveguides **91b** and onto the photoconductive plate **91**. Koji is silent with regard to a cross-sectional shape of the optical coupling sections **81c**, (although it is obvious to one of ordinary skill that the shape is likely cylindrical due to surface tension of the liquid polymer material). Kuhara teaches a transparent potting resin **24** (polymer) that connects a photodiode **15** and an optical waveguide (fiber **19**) and that multiple compressive forces **D, E, F** are applied to the resin **15** during its potting/molding process, thus creating a concave cross-sectional shape. (See at least Fig. 12 and description) It would have been

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obvious to one of ordinary skill in the art at the time the invention was made to compress the optical coupling section while it's cured/fused/hardened and form a concave cross-sectional shape. The motivation would be to suppress defects such as exfoliation, cracks, and bubbles within the optical coupling section, as such defects substantially increase the light propagation loss.

With specific reference to claims 3 and 16, Kuhara teaches that the potting resin is one of the ultraviolet-hardening (i.e. UV curing) resins which are hardened by ultraviolet rays radiation at room temperature or one of the thermally-hardened (i.e. thermal curing) resins. (See at least column 5, lines 51-56)

With specific reference to claims 4 and 17, Koji and Kuhara disclose the invention except for a distance range between optical components (the photodiodes and the waveguides). It would have been obvious to one of ordinary skill in the art at the time the invention was made to adjust a spacing between the optical components and consequently a thickness and proper amount of the polymer used to make the optical coupling section, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or working ranges involves only routine skill in the art. In re Aller, 105 USPQ 233. The motivation would be to minimize optical loss as well as optimize the ease of manufacture in relation to amount of polymer raw material used.

With specific reference to claims 5, 6, 18, and 19, Koji teaches a surface treatment section **91c** (approximately the same size as the optical coupling section **81c**), to which surface treatment such as a hydrophilic (wetting) property in which

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surface treatment differs from the perimeter corresponding to the optical coupling section 81c, or hydrophobicity (non-wetting), was performed on the photoconductive corrugated plate 91 outside (surrounding) the perimeter of the optical coupling section 81c. ([0048])

With specific reference to claim 8, 11, 12, 21, 23, and 24, Koji teaches the optical components including the photodiodes (light emitting optical component) and the photoconductive area, which loses an electrical charge on exposure to light (i.e. light detecting/receiving optical component). VCSEL is also a common type of laser and it would have been obvious to one of ordinary skill in the art to use it as the light emitting component for ease and cost-effective manufacture.

With specific reference to claims 9, 10, and 22 using optical component such as diodes and laser onto and as part of an optical circuit/board is extremely well known in the art and it would have been obvious to one of ordinary skill in the art to do so in order to gain practical use of the optical components.

### ***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Please see PTO-892 for additional references cited.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Charlie Peng whose telephone number is (571) 272-2177. The examiner can normally be reached on 9 am - 6 pm M-F.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Frank Font can be reached on (571) 272-2415. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Charlie Peng  
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September 1, 2005



Brian Healy  
Primary Examiner